FlyBy Math[TM] Alignment
Essential Academic Learning Requirements
And Grade Level Expectations

EALR 1: The student understands and applies the concepts and procedures of mathematics.

Component 1.4: Understand and apply concepts and procedures from probability and statistics.

STATISTICS

GLE 1.4.5 Understand how to organize, display, and interpret data in text from single line graphs and scatter plots.

Evidences of Learning	*FlyBy Math*[TM] Activities
▪ Read and interpret data from single line graphs and scatter plots, and determine when the use of these graphs is appropriate.	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
▪ Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience.	--Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
▪ Make inferences based on a set of data.	--Predict outcomes and explain results of mathematical models and experiments. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
▪ Use data from a table, graph, or chart to support an interpretation.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Component 1.5: Understand and apply concepts and procedures from algebraic sense.

SYMBOLS AND REPRESENTATIONS

GLE 1.5.4 Apply understanding of tables, graphs, expressions, equations, or inequalities to represent situations involving two arithmetic operations.

Evidences of Learning	*FlyBy Math*[TM] Activities
▪ Translate a situation involving multiple arithmetic operations into algebraic form using equations, tables, and graphs.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

EVALUATING AND SOLVING

GLE 1.5.6 Understand and apply a variety of strategies to solve one-step equations.

Evidences of Learning	FlyBy Math^{TM} Activities
▪ Solve real-world situations involving single variable equations.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

EALR 2: The student uses mathematics to define and solve problems.

Component 2.1: Understand problems.

GLE 2.1.1 Analyze a situation to define a problem.

Evidences of Learning	FlyBy Math^{TM} Activities
▪ Define the problem.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

Component 2.2: Apply strategies to construct solutions.

GLE 2.2.1 Apply strategies, concepts, and procedures to devise a plan to solve the problem.

Evidences of Learning	FlyBy Math^{TM} Activities
▪ Select and apply appropriate mathematical tools for a situation.	--Conduct simulation and measurement for several aircraft conflict problems. --Use tables, graphs, and equations to solve aircraft conflict problems.

GLE 2.2.2 Apply mathematical tools to solve the problem.

Evidences of Learning	FlyBy Math^{TM} Activities
▪ Implement the plan devised to solve the problem.	--Conduct simulation and measurement for several aircraft conflict problems. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
▪ Check the solution to see if it works.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

EALR 3: The student uses mathematical reasoning.

Component 3.2: Make predictions, inferences, conjectures, and draw conclusions.

GLE 3.2.1 Apply prediction and inference skills to make or evaluate conjectures.

Evidences of Learning	FlyBy Math™ Activities
	--Predict outcomes and explain results of mathematical models and experiments. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

GLE 3.2.2 Apply the skills of drawing conclusions and support the conclusions using evidence.

Evidences of Learning	FlyBy Math™ Activities
▪ Draw conclusions from displays, texts, or oral discussions and justify those conclusions with logical reasoning or other evidence.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Component 3.3: Verify results

GLE 3.3.1 Analyze procedures and information used to justify results using evidence.

Evidences of Learning	FlyBy Math™ Activities
	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

EALR 4: The student communicates knowledge and understanding in both everyday and mathematical language.

Component 4.2: Organize, represent, and share information.

GLE 4.2.2 Apply communication skills to clearly and effectively express or present ideas and situations using mathematical language or notation.

Evidences of Learning	FlyBy Math™ Activities
▪ Clearly explain, describe, or represent mathematical information in a pictorial, tabular, graphical, two- or three-dimensional drawing, or other form as appropriate for the mathematical information (e.g., time, distance, categories), audience, and/or purpose, such as to perform or persuade, with notation and labels as needed.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

▪ Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience.	--Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

EALR 5: The student understands how mathematical ideas connect within mathematics, to other subject areas, and to real-life situations.

Component 5.1: Relate concepts and procedures within mathematics.

GLE 5.1.1 Apply concepts and procedures from a variety of mathematical areas in a given problem or situation.

Evidences of Learning	*FlyBy Math*^{TM} Activities
▪ Translate a situation involving multiple arithmetic operations into algebraic form using equation, table, and graphs.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
▪ Given a set of data, compare various representations (e.g., table, graph, rule) for a given situation.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

GLE 5.1.2 Apply different mathematical models and representations to the same situation.

Evidences of Learning	*FlyBy Math*^{TM} Activities
	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

Component 5.3: Relate mathematical concepts procedures to real-world situations.

GLE 5.3.1 Understand that mathematics is used in daily life and extensively outside the classroom.

Evidences of Learning	*FlyBy Math*^{TM} Activities
	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

GLE 5.3.2 Understand that mathematics is used within many occupations or careers.

Evidences of Learning	*FlyBy Math*^{TM} Activities
▪ Identify where in a particular career mathematics is used.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.